

virus does not permeate to the embryo if has been traced to the ovule integuments.—H. C. COWLES.

Leaf anatomy of Veronica.—The xerophytic, shrubby species of *Veronica* indigenous to New Zealand have long excited the interest of ecologists, and now they have been made the subject of a careful anatomical study by ADAMSON.¹³ He investigated 39 species, the material being obtained from plants grown in England, although comparison was made with herbarium material. Most of the species are indigenous to the eastern part of the southern island where the rainfall and temperature are low and the wind high. While these species seem admirably fitted for life in such a climate, they show remarkably little plasticity in cultivation. Six ecological groups are recognized as follows: (1) with the large or elongated, not particularly xerophytic, leaves; (2) with leaves similar in aspect, but thick and leathery; (3) with small, spoon-shaped, somewhat xerophytic leaves; (4) with leaves similar in form, but much more leathery and often glaucous; (5) with leaves much reduced and either small and spreading or appressed and imbricate; (6) with leaves toothed and petioled. The most characteristic xerophytic structural features are reduction of leaf surface and of intercellular spaces and high cutinization. In some of the more xerophytic forms there are curved cuticular expansions arching over the stomata, forming an outer vestibule. Hydathodes, usually more characteristic of hygrophytes, are found in some of these species. In general, the increasing xerophytism noted in the first five groups above is correlated with increasing xerophytism of habitat, culminating in the famous whip-cord species, which show a striking resemblance to certain conifers.—H. C. COWLES.

Upper cretaceous and eocene plants.—Only the points of interest to botanists need be considered in this contribution by BERRY.¹⁴ In the cretaceous flora the author describes a number of conifers and angiosperms. In the case of the former, he records his belief that the material identified by HOLLICK and described anatomically by the reviewer as species of the recognized mesozoic *Sequoia*, do not in reality belong to this genus. This is a most interesting statement in view of the fact that some of the reviewer's specimens came from and were identified by BERRY himself. Dr. STOPES in her recent continuation of the catalogues of mesozoic plants of the British Museum, being in possession of some of the reviewer's material, admits that it does not belong anatomically to the genus *Sequoia*. There thus arises a very interesting situation indeed. What BERRY systematically identifies as *Sequoia* is according to Dr. STOPES anatomically not *Sequoia* at all. One wonders if the paleobotanists of the Mesozoic will be as slow to admit that they may be deceived by the external

¹³ ADAMSON, R. S., On the comparative anatomy of the leaves of certain species of *Veronica*. Jour. Linn. Soc. Bot. 40:247-274. figs. 17. 1912.

¹⁴ BERRY, E. W., The Upper Cretaceous and Eocene floras of South Carolina and Georgia. Professional paper 84, U.S. Geol. Survey. 1915.